भारतीय मानक

Indian Standard

IS 1448 (Part 64) : 2023

पेट्रोलियम और उसके उत्पाद — परीक्षण पद्धतियाँ

भाग 64 विलायकों में गैर-वाष्पशील पदार्थ

(दूसरा पुनरीक्षण)

Petroleum and its Products — Methods of Test

Part 64 Non-volatile Matter in Solvents

(Second Revision)

ICS 75.080

© BIS 2023

भारतीय मानक ब्यूरो
BUREAU OF INDIAN STANDARDS
मानक भवन, 9 बहादुर शाह ज़फर मार्ग, नई दिल्ली - 110002
MANAK BHAVAN, 9 BAHADUR SHAH ZAFAR MARG
NEW DELHI - 110002
www.bis.gov.in www.standardsbis.in

September 2023 **Price Group 4**

Methods for Sampling and Test for Petroleum and Related Products of Natural or Synthetic Origin (Excluding Bitumen) Sectional Committee, PCD 01

FOREWORD

This Indian Standard (Part 64) (Second Revision) was adopted by the Bureau of Indian Standards, after the draft finalized by the Methods for Sampling and Test for Petroleum and Related Products of Natural or Synthetic Origin (Excluding Bitumen) Sectional Committee had been approved by the Petroleum, Coal and Related Products Division Council.

This standard was originally published in 1967 and was based on ASTM D 1353-56. Subsequently, first revision was done in 1998 and first amendment was issued in 2004. In the first revision, the scope of the method was enlarged to cover petroleum naphtha and the expression of result was modified to align with ASTM D 1353 : 92.

The second revision has been brought out to keep pace with the latest technological developments and international practices. In this revision following major changes have been made:

a) Sample preparation and precision data have been verified;
b) Dimensions were modified with inclusion of tolerances; and
c) References and apparatus have been updated and reporting of results have been included.

In preparation of this standard considerable assistance has been derived from ASTM D1353-13 ‘Standard test method for nonvolatile matter in volatile solvents for use in paint, varnish, lacquer, and related products’ and precision data has been verified by Indian Oil Corporation Limited (IOCL).

The composition of the Committee responsible for the formulation of this standard is given in Annex A.

In reporting the results of a test or analysis made in accordance with this standard, if the final value, observed or calculated, is to be rounded off, it shall be done in accordance with IS 2 : 2022 ‘Rules for rounding off numerical values (*second revision*)’.

Indian Standard

PETROLEUM AND ITS PRODUCTS — METHODS OF TEST

PART 64 NONVOLATILE MATTER IN SOLVENTS

(Second Revision)

1 SCOPE

This standard prescribes the method of test for determination of nonvolatile matter in solvents including petroleum naphtha.

2 APPARATUS

2.1 Oven — thermostatically controlled at 105 °C ± 5 °C.

2.2 Weighing Balance — electronic or suitable weighing balance with precision to measure 0.1 mg.

2.3 Glass Evaporating Dish — approximately 150 ml capacity, (105 ± 5) mm diameter and (55 ± 5) mm height.

3 SAMPLE PREPARATION

3.1 Shake sample container gently to make it homogenous. Check sample visually for presenceof suspended matter/impurities.

3.2 In case suspended matter/impurities observed, sample shall be filtered by qualitative filterpaper or sintered glass filter or equivalent, to remove impurities.

4 PROCEDURE

4.1 Clean and dry the glass evaporating dish in an oven at 105 °C ± 5 °C for 30 minutes and cool in desiccator for 1 h. Take the weight of evaporating dish (W_1). Repeat heating and cooling with half timing until the weight of crucible is constant or within 0.1 mg of the last weighing.

4.2 Pipette 125 ml of the sample at room temperature into the 150 ml glass evaporating dish, place it on a water bath/steam bath and evaporate the sample to dryness. After evaporation wipeout the outside of the dish with a clean, lint-free cloth or absorbent paper and dry evaporating dish in an oven at 105 °C ± 5 °C for 30 minutes. Remove evaporating dish and allow cooling in a desiccator for 1 h. After cooling accurately weigh the evaporating dish. Return the dish in to the oven for 15 minutes, cool it for 30 minutes and reweigh (W_2). Repeat, if necessary, until the weight of evaporating dish is constant or within 0.1 mg of the last weighing.

5 CALCULATION

Calculate the non-volatile residue in the sample by means of the following equation:

$$\text{Non-volatile residue, mg/100 ml, } A = \times \frac{100\,000}{V}$$

where

A = mass, in g, of residue after evaporation (W_2 - W_1); and
V = volume, in ml, of sample used.

6 REPORTING OF RESULTS

Report the result to nearest 0.1 mg/100 ml.

7 PRECISION

Results shall not differ from the mean by more than following:

Repeatability	*Reproducibility*
0.9 mg per 100 ml	2.4 mg per 100 ml

ANNEX A

(*Foreword*)

COMMITTEE COMPOSITION

Methods for Sampling and Test for Petroleum and Related Products of Natural or Synthetic Origin (Excluding Bitumen) Sectional Committee, PCD 01

Organization	*Representative(s)*
Indian Institute of Petroleum, Dehradun	DR ANJAN RAY **(*Chairperson*)**
Air Headquarters, Ministry of Defence, New Delhi	WG CMDR S. A. TAWAB WG CDR D. ANANDRAJ ROY (*Alternate*)
All India Instrument Manufacturers and Dealers Association, Mumbai	PROF G. M. RAO
Bharat Oman Refineries Limited, Bina	SHRIMATI ASAWARI KELKAR SHRI B. SRIDHAR (*Alternate*)
Bharat Petroleum Corporation Limited, Mumbai	SHRI R. SUBRAMANIAN SHRI C. SHANMUGANATHAN (*Alternate*)
Central Institute of Plastics Engineering and Technology, Bhubaneshwar	DR SMITA MOHANTY
Central Revenue Control Laboratory, New Delhi	SHRI V. SURESH
Castrol India Limited, Mumbai	SHRI RAMAN RAI
Chennai Petroleum Corporation Limited, Chennai	SHRI H. RAMAKRISHNAN DR V. SELVAVATHI (*Alternate*)
CSIR - Central Institute for Mining and Fuel Research, Dhanbad	SHRI P. K. SINGH SHRI S. R. K. RAO (*Alternate* I) SHRI S. DUTTA (*Alternate* II)
Directorate General of Aeronautical Quality Assurance, New Delhi	SHRI SANTOSH NAMDEO
Directorate General of Quality Assurance, Ministry of Defence, Kanpur	DR S. K. PANDEY SHRI SACHIN VINAYAK ZOPE (*Alternate*)
Elico Limited, Hyderabad	SHRI T. V. SHIVA K. RAO SHRI N. RAJU (*Alternate*)
GAIL (India) Limited, New Delhi	DR NITYANANDA PANDA DR S. MAHANTY (*Alternate*)
Gulf Oil Lubricants India Limited, Mumbai	SHRI SANJAY KUMAR SHRI MAYURESH GODBOLE (*Alternate* I) SHRI S. GANESH (*Alternate* II)
Hindustan Petroleum Corporation Limited, Mumbai	SHRI ELECHERAN KUMAR SHRI SANTOSH DHAKU BHOGALE (*Alternate* I) SHRI MAHESH TOTLA (*Alternate* II)

Organization	*Representative(s)*
HPCL Mittal Energy Limited, Noida	Shri Satyabrata Bandyopadhyay Shri Narendra Kumar Gupta (*Alternate*)
Indian Oil Corporation Limited — Refineries and Pipelines Division, New Delhi	Dr Shashi Pal Singh Dr Ashutosh Mishra (*Alternate*)
Indian Oil Corporation (MKTG), Mumbai	Shri A.S. Krishnamoorthy Dr Sreekumar N. Veedu (*Alternate*)
Indian Oil Corporation (R & D Centre), Faridabad	Dr S. K. Majumdar
Indraprastha Gas Limited, New Delhi	Shri P. K. Pandey Shri Rahul Nigam (*Alternate*)
Lubrizol India Limited, Mumbai	Shri Anil Mane Shrimati Reena Kuril (*Alternate*)
Mangalore Refinery and Petrochemical Limited, Mangalore	Shri Yogeesha Shrimati Anitha Shetty (*Alternate* I) Shri R. M. Praksah (*Alternate* II)
Ministry of Railways, Lucknow	Shri Rajesh Srivastava Shrimati Sonam Gupta (*Alternate*)
National Test House, Kolkata	Shri K. C. Naskar Shri P. K. Chakraborty (*Alternate*)
Nayara Energy Limited, Mumbai	Shri Mriganka Tarafdar Shri Dhiraj Gondalia (*Alternate*)
Numaligarh Refinery Limited, Golaghat	Shri Sobhan Konwar Shri Anjan Kalita (*Alternate*)
Oil and Natural Gas Corporation Limited, New Delhi	Shri Gour Mohan Dass Shrimati Leena John (*Alternate* I) Shri Dinesh S. R. Reddy Kakuturi (*Alternate* II)
Oil India Limited, Duliajan	Shri B. C. Datta
Petroleum and Natural Gas Regulatory Board, New Delhi	Shri Anil Meghani Shri Noor Khan (*Alternate*)
Petroleum Conservation Research Association, New Delhi	Shri Surendra Pratap Shri M. P. Bangwal (*Alternate*)
Reliance Industries Limited, Mumbai	Shri Pramod Mall
Shriram Institute for Industrial Research, New Delhi	Dr Rajesh Kumar Dr Mukesh Garg (*Alternate*)

Organization	*Representative(s)*
BIS Directorate General	SHRIMATI MEENAL PASSI, SCIENTIST 'F'/ SENIOR DIRECTOR AND HEAD (PETROLEUM, COAL AND RELATED PRODUCTS) [REPRESENTING DIRECTOR GENERAL (*Ex-officio*)]

Member Secretary
SHRI HARI MOHAN MEENA
SCIENTIST 'C'/DEPUTY DIRECTOR
(PETROLEUM, COAL AND RELATED PRODUCTS), BIS

This Page has been Intentionally left blank

Bureau of Indian Standards

BIS is a statutory institution established under the *Bureau of Indian Standards Act*, 2016 to promote harmonious development of the activities of standardization, marking and quality certification of goods and attending to connected matters in the country.

Copyright

BIS has the copyright of all its publications. No part of these publications may be reproduced in any form without the prior permission in writing of BIS. This does not preclude the free use, in the course of implementing the standard, of necessary details, such as symbols and sizes, type or grade designations. Enquiries relating to copyright be addressed to the Head (Publication & Sales), BIS.

Review of Indian Standards

Amendments are issued to standards as the need arises on the basis of comments. Standards are also reviewed periodically; a standard along with amendments is reaffirmed when such review indicates that no changes are needed; if the review indicates that changes are needed, it is taken up for revision. Users of Indian Standards should ascertain that they are in possession of the latest amendments or edition by referring to the website-www.bis.gov.in or www.standardsbis.in.

This Indian Standard has been developed from Doc No.: PCD 01 (20279).

Amendments Issued Since Publication

Amend No.	Date of Issue	Text Affected

BUREAU OF INDIAN STANDARDS

Headquarters:

Manak Bhavan, 9 Bahadur Shah Zafar Marg, New Delhi 110002
Telephones: 2323 0131, 2323 3375, 2323 9402 *Website*: www.bis.gov.in

Regional Offices:		*Telephones*
Central	: 601/A, Konnectus Tower -1, 6th Floor, DMRC Building, Bhavbhuti Marg, New Delhi 110002	2323 7617
Eastern	: 8th Floor, Plot No 7/7 & 7/8, CP Block, Sector V, Salt Lake, Kolkata, West Bengal 700091	2367 0012 2320 9474
Northern	: Plot No. 4-A, Sector 27-B, Madhya Marg, Chandigarh 160019	265 9930
Southern	: C.I.T. Campus, IV Cross Road, Taramani, Chennai 600113	2254 1442 2254 1216
Western	: Plot No. E-9, Road No.-8, MIDC, Andheri (East), Mumbai 400093	2821 8093

Branches : AHMEDABAD. BENGALURU. BHOPAL. BHUBANESHWAR. CHANDIGARH. CHENNAI. COIMBATORE. DEHRADUN. DELHI. FARIDABAD. GHAZIABAD. GUWAHATI. HIMACHAL PRADESH. HUBLI. HYDERABAD. JAIPUR. JAMMU & KASHMIR. JAMSHEDPUR. KOCHI. KOLKATA. LUCKNOW. MADURAI. MUMBAI. NAGPUR. NOIDA. PANIPAT. PATNA. PUNE. RAIPUR. RAJKOT. SURAT. VISAKHAPATNAM.

Published by BIS, New Delhi